Seattle Public Utilities
CAM
Client Assistance Memo
401
spu
Seattle Permits
— part of a multi-departmental City of Seattle series on getting a permit

SPU Survey Requirements

Updated June 2005

When are land surveys required by the City?

The City of Seattle requires surveys to be submitted with all work performed for the City, and for plans submitted to the City as part of an application for permits for building, street use, or other permits. All surveys are required to meet certain basic standards. Plans that show boundaries, right-of-ways, easements, or topography must be prepared by a professional land surveyor registered in the State of Washington.

What is the City trying to achieve by requiring surveys?

Surveys are required to protect City and private property, easements and rights-of-way, and promote the public welfare of Seattle citizens.

What activities or projects must meet SPU Survey requirements?

- All projects or work requiring a land survey performed for the City of Seattle.
- All projects or work requiring a land survey performed on private property containing City infrastructure, or projects tying into City infrastructure and/or containing infrastructure the City will maintain.

In general, what are the applicant's responsibilities regarding surveys?

In order for plans to be approved, all plans submitted to the City of Seattle must also contain the following elements:

- The surveyor's stamp, signature, contact information and the date signed. (see Note 1)
- North arrow, graphic scale, and vicinity map. (see Note 2)
- Legal Description, if needed (see Note 3)
- Datum—use of NAVD 88 and NAD83/91 are required by ordinance. (see Note 4)
- Monuments within the project area (see Note 5)
- Site benchmarks (see Note 6)
- Rights-of-way with dimensions, source references and methods used to determine (see Note 7)
- Easements with type, dimensions, and source references (see Note 8)
- Property lines with bearings and distances (see Note 9)
- Buildings (see Note 10)
- Streets and street improvements (see Note 11)
- Utilities (see Note 12)
- Contours (see Note 13)
- Steep slopes (See Note 14)
- Topography (see Note 15)
- Significant Trees (see Note 16)
- Water features (see Note 17)
- Protected areas, if required, including wetland boundaries. (see Note 18)
- Setbacks (see Note 19)
- Underground hazards (see Note 20)
- Any monuments in the project area that may be disturbed, destroyed, or removed shall be noted on the plans as requiring replacement. An application for a permit to remove or destroy a survey monument must be filed with the Washington State Department of Natural Resources, pursuant to RCW 58.24.040(8). Under such conditions add Note 21 to General Notes on plan (see Note 21).

What are the steps of the process?

For applicable projects, SPU Survey will be required to review any project plans containing Survey information. This will be done as part of the normal plan review process.

Reduce Delay! Common mistakes that will cause plans to be rejected:

- Incorrect name for vertical datum used. The current datum is NAVD88, not the City of Seattle.
- Descriptions, elevations and source reference for benchmarks used are not shown on plan.
- Benchmarks noted are much too far away from project area to be useful.

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- Only one benchmark is shown. At least two are required.
- When used, NAD83(1991) control points' coordinates and ties to project control are not shown.
- Full project control is not shown. Monument lines are omitted.
- Graphic scale is missing.

Contacts

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Questions concerning the survey requirements in this document should be directed to:
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Useful Links

Documentation, tools and other useful information can be found online at the links below.
SPU Engineering
www.seattle.gov/util/Engineering/index.asp
SPU Engineering Survey
CAD Template
www.ci.seattle.wa.us/util/planning.engineering/cadresources.htm
Benchmarks and control
http://www.surveycontrol.state.wa.us/

Survey Requirements Notes

Note 1. **Land Surveyor's Stamp** - Work consisting of the Practice of Land Surveying shall be done by or under the direction of a Surveyor licensed to practice in the State of Washington (RCW 18.43.010), and shall conform to all RCWs and WACs pertaining to surveying and engineering. Plans, specifications, plats and reports prepared by the Surveyor shall be signed, dated and stamped with the Surveyors' seal. (RCW 18.43.070) Washington State law defines the "practice of land surveying" as "assuming responsible charge of the surveying of land for the establishment of corners, lines, boundaries, and monuments, the laying out and subdivision of land, the defining and locating of corners, lines, boundaries and monuments of land after they have been established, the survey of land areas for the purpose of determining the topography thereof, the making of topographical delineations and the preparing of maps and accurate records thereof, when the proper performance of such services requires technical knowledge and skill." (RCW 18.43.020(9). ←

Note 2. **North Arrow** - Click here to download AutoCAD support files including the north arrow block.
Click **"http://www.seattle.gov/util/Engineering/CAD_Resources/index.asp"** here for the standard drawing and additional CAD resources. ←

Note 3. **Legal Description** - Legal Descriptions are needed for plats, short plats, easements containing City utilities, etc. Include the plat name or short plat number, block number if any, and lot number or parcel letter, or the metes and bounds description of the parcel. ←

Note 4. **The Datum Ordinance** 121291, went into effect Jan. 1, 2004. Click here for the full text of the ordinance. ←

The horizontal datum requirement will not be strictly enforced until January 2006 when the City has a more widespread network of coordinated horizontal control points available for reference. At that time the horizontal datum for all survey work (including but not limited to, mapping, platting, planning, design, right-of-way surveys, and construction surveys) shall be

the Washington State Lambert Grid Coordinate System North Zone, using the NAD83 (1991) datum as established in accordance with Chapter 58.20 Revised Code of Washington. The unit of measurement shall be the U.S. Survey Foot.

The plans shall show the horizontal control used to establish ties to the datum, with type, size, and location, date visited, and the State Plane coordinates for each monument used. Show at least two monuments on each street in the project. Project control may be shown in the design drawings, or on its own sheet.

Seattle Public Utilities maintains a Continuously Operating Reference GPS network which can be utilized to establish NAD83(1991). Contact the Seattle Public Utilities Survey Section at 206-684-5073 to obtain data from the network.

The Vertical datum for all survey work (including but not limited to mapping, platting, planning design, right-of-way surveys, and construction surveys) shall be the North American Vertical Datum of 1988 (NAVD 1988), as adopted by City of Seattle Ordinance 121291. The plans shall show the benchmarks used to establish ties to the datum, with reference number, description, location and elevation of each benchmark used, and any project site benchmarks. Information on horizontal and vertical control monuments can be found in the Washington Council of County Surveyors Data Warehouse at http://www.surveycontrol.state.wa.us/wccsmap, or in the City of Seattle Engineering Records Vault on the 47th floor of the Seattle Municipal Tower, at 700 Fifth Avenue, Seattle, WA. Other accepatable sources for benchmarks are WSDOT, King County and NOAA.

When reference is made to records or plans created using the City of Seattle Datum, a local conversion factor between the two datums shall be established using bench marks in each of the respective datums and shown on the plans. The City of Seattle Datum benchmark used to establish the conversion factor must be the benchmark nearest to the project site. Information on the City of Seattle Datum can be obtained by consulting City of Seattle Survey field books, which are available in the Engineering Records Vault. The plans shall show the description, elevation, and book/page reference for the City of Seattle Datum benchmark used to establish the conversion factor. ←

Note 5. **Monuments -** The plans shall show all monuments, geometry and references used to establish the right-of-way, lines referencing the right-of-way, property lines, easements and any rights in real property shown. The plans shall show bearing and distance on monument lines, or radius, delta angle, and curve length on curving monument lines, and the station at each monument. If construction baselines other than the monument line are used, show the relation of each baseline to the monument line. Survey control and boundary information may be shown on the design drawings, the vicinity map, or on its own sheet. ←

Note 6. **Benchmarks -** Show site benchmarks. Project site benchmarks shall be established by measurement from two local benchmarks, meeting Third Order procedural requirements as specified in the Geospatial Positioning Accuracy Standards by the Federal Geographic Data Committee. Site benchmarks shall be set in a location that will not be disturbed by the proposed construction. ←

Note 7. **Right-of-ways -** Show the width on each side of the monument line, and the references used. If the right of way is of variable width, show the width at each end of the block. ←

Note 8. **Easements -** Show easements within the project area, with type, dimensions, and source reference. ←

Note 9. **Property Lines -** Show bearings and distances for straight property lines, and radius, delta angle and arc length for curves. ←

Note 10. **Buildings -** Show the location of all existing buildings. Show the perpendicular distance to the property and right-of-way lines when significant to development. ←

Note 11. **Streets -** Show the right-of way lines, monument lines, edge of pavements, concrete surfaces, asphalt surfaces, gravel surfaces, and channelization if relevant.

Show the curbs, curb cuts, wheelchair ramps, gutter and flow lines, sidewalks, landscape areas, pedestrian and bike paths. ←

Note 12. **Utilities -** Field locate and show all visible utilities, structure and appurtenances. Show buried utilities and the source of the information used. Show the location, size and description of all utilities including water, power, sewer, and storm drainage systems and appurtenances. Show elevations at rim and inverts of manholes, catch basins, and inlets. Locate and dimension all fire hydrants, vaults, utility poles, etc. ←

Note 13. **Contours -** Show existing and proposed contours at 1-foot intervals for portions of the site with less than 5% slope, at 2-foot intervals for portions of the site with slopes greater than 5% and less than 40%, and for those areas exceeding 40% that will be graded. Show 5-foot intervals for portions of the site with slopes that exceed 40% but will not be disturbed. ←

Note 14. **Steep Slopes -** Identify slopes greater than 40%. Show the top of slopes greater than or equal to 40%. ←

Note 15. **Topography -** Show rockeries, retaining walls, fences, bridges, swales, culverts, etc. Show the location, length, and height above finished grade of all fences, rockeries, and retaining walls. Note heights at end and mid points. ←

Note 16. **Significant Trees -** Show evergreen and deciduous trees, 8" or more in diameter, as measured 4 feet above existing grade. Label each tree with common name and diameter. Show drip lines. ←

Note 17. **Water Features -** Show lakes, rivers, streams, ditches, ponds and other surface water features. Show the line of ordinary high water and the top of any well-defined banks. Show the 100-year floodplain, as shown on FEMA maps. Show protected areas: top of bank of Type A, B, and C streams, centerline of Type D streams, and wetlands. ←

Note 18. **Environmentally Sensitive Areas -** Show areas defined in Seattle's Critical Areas Ordinance (SMC 25.09). If there are protected areas on or adjacent to your site, contact the Department of Planning and Development reviewer for boundary verification prior to designing your project. ←

Note 19. **Setbacks -** Show the required primary setbacks from the protected areas. ←

Note 20. **Underground Hazards -** Show areaways, tunnels, mines and other underground hazards. ←

Note 21. **Survey Monuments -** Survey Monuments shall not be removed, disturbed, covered, or destroyed before a permit is obtained from the Washington State Department of Natural Resources. www.dnr.wa.gov/htdocs/plso/download.htm, 360-902-1194. A copy of the permit shall be given to the Seattle Public Utilities Survey Section, phone 206-684-5073, fax 206-733-9902, at least 4 working days before a monument is removed, disturbed, covered, or destroyed.

The contractor may request that the Seattle Public Utilities Survey Section perform the required monument permitting and surveying. Contact the Land Survey Manager (206-684-5073) or the Chief Surveyor (206-684-4674) at least 4 working days prior to activity which will affect a monument. ←